

# Development of National Marsh Bird Monitoring Program

## Quarterly Update – September 2004

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Photo by Chris Nadeau

### An understanding of the program

The development of the National Marsh Bird Monitoring Program began in 1999 and has grown a substantial amount in the 5 years of its existence (see [Figure 1: Increase in Program Participation](#)). The program was created to standardize marsh bird survey methodology across the nation so that a variety of parameters could be evaluated. These include:

- Obtain information on the status and trends of secretive marsh birds on local, regional, and national scales. Other broad-scale monitoring programs provide inadequate coverage of wetlands (Bystrak 1981, Robbins et al. 1986, Gibbs and Melvin 1993).
- Gain knowledge of habitat preference for secretive marsh birds so that educated management decisions can be implemented and management plans developed. Many marsh bird species are listed as Birds of Conservation Concern, Threatened, or Endangered on both state and federal levels.
- Evaluate and improve survey methods and increase knowledge on detection probability, effectiveness of call-broadcast surveys, and the usefulness of distance sampling, double-observer surveys, and removal models for estimating components of detection probability.

Although many agencies and individuals participate in the program, most participants are associated with the National Wildlife Refuge System (NWRS) and other willing partners. The NWRS manages a large portion of the fresh and saltwater marshes on which secretive marsh birds depend. As we continue to refine our survey protocols and the program's structure adapts to feedback, the program will continue to be used by more and more entities outside the NWRS.

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### Current participants

To date, 105 individuals have been or are currently involved in the program at 125 locations in 44 states, 1 Canadian province, and 3 Mexican states. This includes a variety of agencies and private individuals, 62% of which are part of the NWRS or conduct surveys on NWRS land. The other 38% of participants are associated with other federal or state agencies, other protected areas, Native American tribes, or private organizations. [Table 1](#) provides a list of program participants. All participation in the program is voluntary and we thank all who have given their time and effort conducting marsh bird surveys and providing feedback on survey methods.

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### Progress with Data Pooling and Analysis

To accomplish the objectives of the program we must first create a pooled dataset by entering and merging the survey data from all participants. A *Microsoft Access* database has been created to facilitate pooled data entry. Currently there are 2 full-time and 3 part-time employees working with this database to complete data entry, quality control, and standardization. So far we have entered and merged data from 37 of the 105 program participants (including data from 1999 to 2003). Data from 11,091 survey points have been entered and merged ([Table 2: Number of points entered in data pool](#)

[per location per year](#)). These data have had some initial quality control checks so that we could conduct some preliminary descriptive analyses. The pooled data currently show the detection of 21,318 individuals of focal marsh bird species and 11,350 individuals of secondary species, repeat detections excluded ([Table 3: Number of focal species detected \(excluding repeat detections\) for data currently in data pool](#)). The pooled dataset currently contains approximately 1/3 of the existing data available to be entered. As we continue to enter and merge data from participants, the entire process of data management is becoming more efficient. Data entry and standardization is a lengthy and time-consuming process due to the large amount of survey data collected by program participants. We expect to have all available data entered and merged into the pooled dataset by the end of 2004.

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## **Future Plans**

The program is growing and many goals will be completed or started in the next quarter. A list of the main objectives for the next quarter is provided below:

### **Annual Report**

The priority for the next quarter will be to enter, standardize, merge, and verify all available data from 1999-2003 and produce an annual report summarizing descriptive analyses on data from all years and all participants. The summary analyses will address many of the primary objectives listed in this report under the section [An Understanding of the Program](#). Once the pooled dataset is up to date, participants may contact us and request digital copies of their data in *Microsoft Access* or *Excel* formats. We expect to produce the annual report by January 2005.

### **Website**

A detailed website for the program is currently being developed. A functional version of the website is expected to be available by December 2004. The website will provide information on the program, protocols and field methods, data management, related information and references, and feedback. In the future, we hope to include online data entry among other interactive tools on the website.

### **Standardization**

As we gain more feedback from participants, we will continue to refine the standardized survey protocols. One of the main objectives before the upcoming field season is to incorporate improvements to make all aspects of the program more efficient and effective. For example, we hope to distribute more standardized datasheets and improve clarity of field protocols so that data recording will be more standardized across all participants. This will not only improve the efficiency of data collection and data management, but will also improve the ability to pool data making data more useful and effective in accomplishing the goals of the program.

Thanks goes out to all participants involved in the program. The time and effort conducting marsh bird surveys is what makes a nation-wide monitoring program feasible and successful. If you have feedback or questions on any aspects of the program please contact the program's principal investigator:

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## References

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- Gibbs, J.P., and S.M. Melvin. 1993. Call-response surveys for monitoring breeding waterbirds. *Journal of Wildlife Management* 57:27-34.
- Robbins, C.S., D. Bystrak, and P.H. Geissler. 1986. The breeding bird survey: its first fifteen years, 1965-1979. U.S. Dept. of the Interior, Fish and Wildlife Service Resource Publication 157. Washington, D.C.

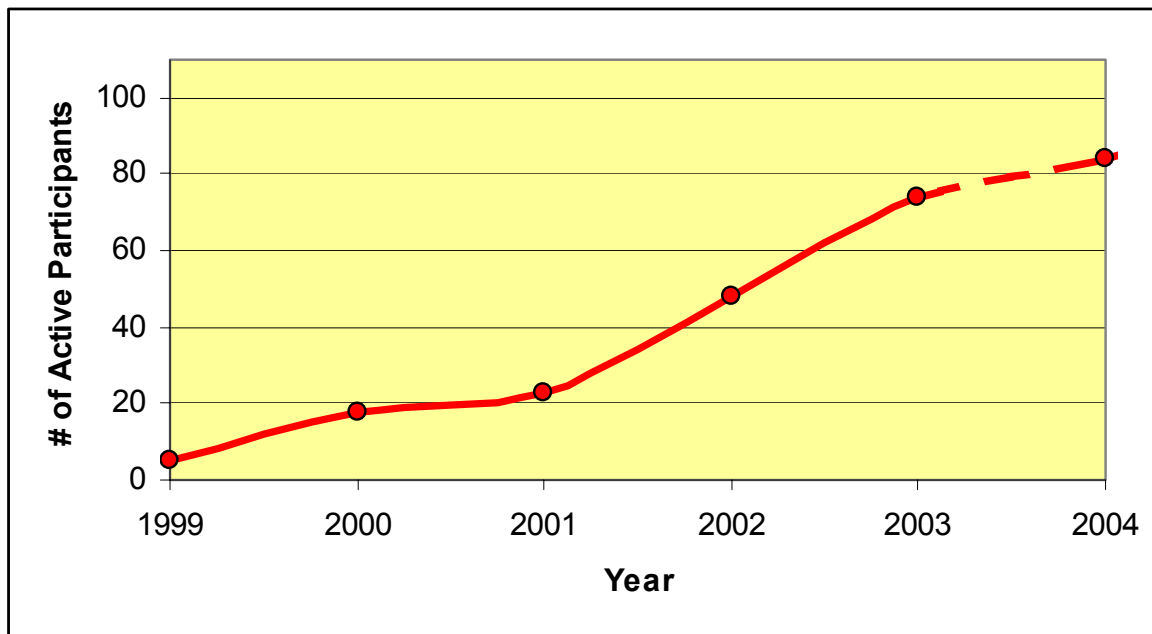
**Table 1: Development of National Marsh Bird Monitoring Program Current Participants**

<b>FWS Region</b>	<b>State, Province, or Country</b>	<b>Location</b>	<b>Primary Contact</b>	<b>Years Participated</b>
1	AZ,CA	Lower Colorado River	Courtney Conway	2000-04
1	CA	Elkhorn Slough National Estuarine Research Reserve	Rikke Kvist Preisler	2004
1	CA	Sacramento-San Francisco	John Martin	2004
1	CA	Salton Sea NWR	Courtney Conway	2004
1	ID	ID Important Bird Areas and ID Department of Fish and Game management areas	Colleen Moulton	2004
1	ID	Teton Valley	Robert Cavallaro	2004
1	OR	Fern Ridge Lake (Corps of Engineers and OR Department of Fish and Wildlife)	Kat Beal	2003-04
1	WA	Columbia NWR	Randy Hill	2003
1	WA	Nisqually NWR Complex	Marian Bailey	2003
1	WA	Turnbull NWR	Mike Rule	1999-03
2	AZ	Arlington Pond	Mark Stewart	2004
2	AZ	Gila River Area (AZ Game and Fish Department)	Bill Burger	2003-04
2	AZ	Goodyear Butte	Diane Lausch	2004
2	AZ	Havas NWR	Courtney Conway	2001-03
2	AZ	Imperial NWR	Guy Wagner	2001-03
2	AZ	Leslie Canyon NWR	Nina King	2003
2	AZ	Mittry Lake WMA	Lin Piest	2003
2	AZ	Patagonia area marshes	Tim Snow	2004
2	AZ	San Bernardino NWR	Nina King	2003
2	AZ	Verde River	Bill Burger	2004
2	NM	Bitter Lake NWR	Gordon Warrick	2003-04
2	NM	Bosque del Apache NWR	Colin Lee	2004
2	OK	Salt Plains NWR	Ron Shepperd	2004
2	OK	Tishomingo NWR	Kris Patton	2003
2	TX	Anahuac NWR	Andy Loranger	2003
3	IA	DeSoto NWR	Bob Barry	2003
3	IA	Port Louisa NWR	Karen Harvey	2004
3	IL	Great River NWR-Delair Division	Eileen Kirsch	2002-03
3	IL	Illinois River NWR	Gwen Kolb	2003
3	IN	Indiana Dunes National Monument	Ralph Grundel	2002
3	IN	Patoka River NWR	Bob Dodd	2004
3	KY	Western Kentucky	Elizabeth Ciuzio	2004
3	MI	Seney NWR	Mike Tansy	2001-03
3	MI	Shiawassee NWR	Rick McAvinchey	2002
3	MN	Agassiz NWR	Soch Lor	2000-03

<b>FWS Region</b>	<b>State, Province, or Country</b>	<b>Location</b>	<b>Primary Contact</b>	<b>Years Participated</b>
3	MN	Big Stone NWR	Kim Bousquet	2004
3	MN	Crane Meadows NWR	Jeanne Holler	2003
3	MN	Hamden Slough NWR	Mike Murphy	2003
3	MN	Litchfield Wetland Management District	Mary Soler	2002-03
3	MN	Minnesota Valley NWR	Vicki Sherry	2003
3	MN	Morris Wetland Management District	Sara Vacek	2003
3	MN	Prairie Potholes (Private and State Lands)	Diane Granfors	2002-03
3	MN	Red Lake DNR (Indian Res)	Dave Price	2002-04
3	MN	Rice Lake NWR	Michelle McDowell	2004
3	MN	Sherburne NWR	Jeanne Holler	1999-03
3	MN	Upper Mississippi River NW&FR	Vickie Hirschboeck	2003
3	MO	Eastern Missouri	Brian Loges	2004
3	MO	Clarence Cannon NWR	Candy Chambers	2002-04
3	MO	Squaw Creek NWR	Frank Durbian	2003
3	MO	Ted Shanks Conservation Area (MO Department of Conservation)	Eileen Kirsch	2002
3	ND	Prairie Potholes	Mark Sherfy	2004
3	TN	Wolf River	Shelton Whittington	2004
3	WI	Horicon NWR	Wendy Woyczik	1999-04
3	WI	Leopold Wetland Management District	Jim Lutz	2004
3	WI	Northeastern Wisconsin	Bob Fisher	2003
3	WI	Whittlesey Creek NWR	Pam Dryer	2000-02
3	WI,IO,MN	Upper Mississippi River NWR - McGregor District	Clyde Male	1993-03
4	AL	Alabama Gulf Coast	Eric Soehren	2003
4	AR	Bald Knob NWR	Tom Edwards	2002
4	AR	Delta region of Arkansas	Andrea Green	2004
4	FL	A.R.M. Loxahatchee NWR	Laura Brandt	2003
4	FL	J.N. Ding Darling NWR	Kendra Pednault-Willett	2003
4	FL	Merritt Island NWR	Marc Epstein	2003-04
4	FL	St. Johns NWR	Marc Epstein	2002-04
4	FL	St. Marks NWR	Joe Reinman	2004
4	FL	St. Vincent NWR	Thom Lewis	2002
4	FL	Ten Thousand Islands NWR	Terry Doyle	2003
4	LA	Central Louisiana	Nicholas Winstead	2004
4	LA	Grand Bay National Estuarine Research Reserve	Mark Woodrey	2004
4	LA	Southwestern Louisiana	Sergio Pierluissi	2004
4	LA	Spring Bayou Wetland Management Area	Lorrie Laliberte	2004
4	MS	Mississippi Sandhill Crane NWR	Scott Hereford	2004-04

<b>FWS Region</b>	<b>State, Province, or Country</b>	<b>Location</b>	<b>Primary Contact</b>	<b>Years Participated</b>
4	NC	Cedar Island NWR	Mike Legare	2002-03
4	NC	Mackay Island NWR	Kendall Smith	2002-04
4	NC	Mattamuskeet NWR	Michael Legare	2003
4	PR	Laguna Cartegena NWR	Stephen Earsom	2003
4	SC	Cape Romain NWR	Craig Sasser	2003
4	TN	Reelfoot Lake	Nicholas Winstead	2003
5	CT	Stewart B. McKinney NWR	Sara Williams	2000-03
5	MA	Assabet River NWR	Stephanie Koch	2002-04
5	MA	Cape Cod National Seashore	Bob Cook	2000
5	MA	Conte NWR	Michelle Babione	2000
5	MA	Great Meadows NWR	Stephanie Koch	2002-04
5	MA	Nomans Land Island NWR	Stephanie Koch	2003-04
5	MA	Oxbow NWR	Stephanie Koch	2002-04
5	MD	Blackwater NWR	Dixie Birch	2000-04
5	MD	Martin NWR	Dixie Birch	2000-04
5	ME	Moosehorn NWR	Maurry Mills	1999-03
5	NH	Great Bay NWR	Debra Kimbrell-Anderson	2000-03
5	NH	Lake Umbagog NWR	Laurie Wunder	2000-04
5	NJ	E.B. Forsythe NWR	Jorge Coppen	2004
5	NJ	Great Swamp NWR	Steve Byland	2002
5	NJ	Supawna Meadows NWR	Linda Chorba Ziemba	2002-04
5	NY	Iroquois NWR	Paul Hess	2000
5	NY	throughout New York	Dave Adams	2004
5	NY	West Point Military Academy	Chris Pray	2003
5	PA	throughout Pennsylvania	Michael Lanzone	2004
5	PA	John Heinz NWR	Brendalee Phillips	2004
5	VA	Back Bay NWR	John Gallegos	2000-04
5	VA	Eastern Shore of Virginia NWR	Pamela Denmon	2001-04
5	VA	throughout Virginia	Mike Wilson	2004
5	VA	Fisherman Island NWR	Pamela Denmon	2001-04
5	VA	Rappahannock River Valley NWR	Sandy Spencer	2002-04
5	VT	3 Important Bird Areas (Vermont Audubon)	Regan Brooks	2003
5	VT	Missisquoi NWR	Al Zelly	2000-03
6	CO	Alamosa NWR	Kelli Stone	2001-03
6	CO	Monte Vista NWR	Kelli Stone	2001-03
6	KS	throughout Kansas	Helen Hands	2004
6	KS	Cheyenne Bottoms Wildlife Viewing Area	Helen Hands	2003-04

FWS Region	State, Province, or Country	Location	Primary Contact	Years Participated
6	KS	Quivira NWR	Helen Hands	2004
6	MN	Rydell NWR	Dave Bennett	2004
6	MT	Bowdoin NWR	Fritz Prellwitz	2002
6	MT	Confederated Salish and Kootenai Tribes	Janene Lichtenberg	2003
6	MT	Medicine Lake NWR	Beth Madden	2002
6	MT	Waterfowl Production Areas in northeastern Montana	Allison Puchniak	2004
6	ND	Devils Lake Wetland Management District	Cami Dixon	2002
6	ND	Lake Alice NWR	Cami Dixon	2002
6	SD	Lacreek NWR	Matt Sprenger	2003-04
6	UT	Ouray NWR	Diane Penttila	2001-04
6	WY	National Elk Refuge	Eric Cole	2002-03
na	Canada, Alberta	Alberta BCR11	Mike Norton	2002
na	Mexico	throughout Baja California	Osvel Hinojosa	2003
na	Mexico	Colorado River Delta	Osvel Hinojosa	2003
na	Mexico	throughout Sinaloa	Osvel Hinojosa	2003
na	Mexico	throughout Southern Sonora	Osvel Hinojosa	2003



**Figure 1: Increase in Program Participation**

**Table 2: Number of points entered in data pool per location per year**

<b>Participant</b>	<b>Max # times each station replicated per year</b>	<b># Stations 1999</b>	<b># Stations 2000</b>	<b># Stations 2001</b>	<b># Stations 2002</b>	<b># Stations 2003</b>	<b># Stations All Years</b>
Agassiz NWR	3	0	119	127	124	0	370
Alabama Gulf Coast	1	0	0	0	0	126	126
Alamosa NWR	3	0	0	38	0	0	38
Alberta BCR11	1	0	0	0	323	0	323
Anahuac NWR	1	0	0	0	0	6	6
Back Bay NWR	4	0	65	95	129	70	359
Bald Knob NWR	2	0	0	0	26	0	26
Bitter Lake NWR	3	0	0	0	0	60	60
Bowdoin NWR	1	0	0	0	16	0	16
Cape Cod National Seashore	1	0	36	0	0	0	36
Cedar Island NWR	3	0	0	0	0	57	57
Cheyenne Bottoms	5	0	0	0	0	113	113
Clarence Cannon NWR	9	0	0	0	0	448	448
Columbia NWR	3	0	0	0	0	126	126
Confed. Salish/Kootenai Tribes	3	0	0	0	0	159	159
Delair Div of Great River NWR	8	0	0	0	0	44	44
Eastern Shore of Virginia NWR	3	0	0	15	0	0	15
Fern Ridge WA	3	0	0	0	0	51	51
Fisherman Island NWR	3	0	0	27	0	0	27
Illinois River NWFR	3	0	0	0	0	30	30
Iroquois NWR	1	0	36	0	0	0	36
J.N. Ding Darling NWR	1	0	0	0	0	18	18
Lake Umbagog NWR	3	0	72	70	0	0	142
Litchfield WMD	3	0	0	0	0	93	93
Lower Colorado River	9	0	0	1085	2010	3182	6277
Loxahatchee NWR	2	0	0	0	0	30	30
Mackay Island NWR	3	0	0	0	36	0	36
Merritt Island NWR	3	0	0	0	0	63	63
Missisquoi NWR	2	0	42	0	0	0	42
Monte Vista NWR	3	0	0	46	0	0	46
Moosehorn NWR	4	266	266	267	0	0	799
Ouray NWR	3	0	0	71	0	0	71
Prairie Potholes Region	4	0	0	0	409	328	737
Red Lake DNR	3	0	0	0	102	103	205
St Johns NWR	6	0	0	0	38	0	38
St Vincent NWR	1	0	0	0	14	0	14
Stewart B McKinney NWR	2	0	0	14	0	0	14
<b>Average # of Replicates</b>	<b>3</b>	<b>Total # of Surveys</b>					<b>11091</b>



**Table 3: Number of focal species detected (excluding repeat detections) for data currently in data pool**

*\*all records without information on repeat detections were counted as new detections*

Participant	Year	AMBI	AMCO	BLRA	CLRA	COMO	KIRA	LEBI	LIMP	PBGR	PUGA	SORA	VIRA	YERA
Agassiz NWR	2000	96	2	0	0	0	0	8	0	146	0	148	54	0
	2001	76	0	0	0	0	0	13	0	77	0	75	43	0
	2002	114	54	0	0	0	0	4	0	99	0	149	33	0
Alabama Gulf Coast	2003	0	0	0	184	6	15	9	0	0	19	0	0	0
Alamosa NWR	2001	7	48	0	0	0	0	0	0	13	0	18	2	0
Alberta BCR11	2002	2	366	0	0	0	0	0	0	4	0	157	0	0
Anahuac NWR	2003	0	0	0	2	0	0	0	0	0	0	0	0	0
Back Bay NWR	2000	0	13	0	0	0	25	5	0	16	0	1	0	0
	2001	2	2	0	0	1	26	18	0	0	0	10	1	0
	2002	0	0	0	0	0	27	46	0	0	0	0	1	0
	2003	0	0	0	0	0	20	4	0	9	0	7	1	0
Bald Knob NWR	2002	0	0	0	0	0	0	0	0	0	0	0	0	0
Bitter Lake NWR	2003	0	0	0	0	0	0	0	0	0	0	0	64	0
Bowdoin NWR	2002	0	7	0	0	0	0	0	0	1	0	13	0	0
Cape Cod National Seashore	2000	0	0	0	0	0	1	0	0	0	0	2	2	0
Cedar Island NWR	2003	0	0	1	121	0	0	0	0	0	0	0	1	0
Cheyenne Bottoms	2003	4	0	0	0	10	0	7	0	0	0	8	50	0
Clarence Cannon NWR	2003	44	0	0	0	0	14	41	0	58	0	64	15	1
Columbia NWR	2003	28	1	0	0	0	0	0	0	67	0	5	64	0
Confed. Salish/Kootenai Tribes	2003	0	145	0	0	0	0	0	0	18	0	111	23	0
Delair Div of Great River NWR	2003	0	0	0	0	0	0	0	0	0	0	19	0	2
Eastern Shore of Virginia NWR	2001	0	0	0	19	0	0	0	0	0	0	0	0	0
Fern Ridge WA	2003	24	59	0	0	0	0	0	0	7	0	22	19	0
Fisherman Island NWR	2001	0	0	0	72	0	3	0	0	0	0	0	0	0
Illinois River NWFR	2003	0	34	0	0	0	0	2	0	3	0	2	1	0

Participant	Year	AMBI	AMCO	BLRA	CLRA	COMO	KIRA	LEBI	LIMP	PBGR	PUGA	SORA	VIRA	YERA
Iroquois NWR	2000	4	50	0	0	31	0	2	0	41	0	3	19	0
J.N. Ding Darling NWR	2003	0	3	0	3	18	1	0	0	0	0	5	0	0
Lake Umbagog NWR	2000	0	0	0	0	0	0	0	0	0	0	3	18	0
	2001	4	0	0	0	0	0	0	0	1	0	1	17	0
Litchfield WMD	2003	8	0	0	0	0	0	11	0	77	0	55	41	0
Lower Colorado River	2001	0	76	95	237	0	0	313	0	23	0	33	304	0
	2002	1	1824	143	576	130	0	1069	0	746	0	53	670	0
	2003	0	1863	683	670	1086	0	1538	0	1308	0	77	874	0
Loxahatchee NWR	2003	1	0	0	0	14	7	6	10	1	0	0	0	1
Mackay Island NWR	2002	2	0	1	6	0	28	8	0	6	0	8	14	0
Merritt Island NWR	2003	0	0	2	0	30	0	2	0	0	0	0	0	0
Missisquoi NWR	2000	6	0	0	0	23	0	1	0	44	0	11	13	0
Monte Vista NWR	2001	10	38	0	0	0	0	0	0	8	0	42	3	0
Moosehorn NWR	1999	6	0	0	0	0	0	0	0	4	0	18	56	0
	2000	0	0	0	0	0	0	0	0	3	0	31	29	0
	2001	0	0	0	0	0	0	0	0	7	0	29	34	0
Ouray NWR	2001	38	994	0	0	0	0	0	0	64	0	3	1	0
Prairie Potholes Region	2002	27	0	0	0	0	1	3	0	2	0	224	44	1
	2003	56	0	0	0	0	0	1	0	99	0	152	110	3
Red Lake DNR	2002	60	102	0	0	0	0	1	0	69	0	96	10	11
	2003	26	6	0	0	0	0	11	0	62	0	48	25	0
St Johns NWR	2002	0	0	1	2	2	6	0	0	0	0	0	0	0
St Vincent NWR	2002	0	0	0	5	2	0	1	0	0	0	0	0	0
Stewart B McKinney NWR	2001	0	0	0	15	0	0	0	0	0	0	0	6	0
	All	646	5687	926	1912	1353	174	3124	10	3083	19	1703	2662	19